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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 09/138,339 | 08/21/1998 | TIMOTHY R. PRYOR | IV/L/P5591 | 3965 |
| 7590 | 10/22/2004 | | EXAMINER | |
| LARSON & TAYLOR 1199 NORTH FAIRFAX STREET SUITE 900 ALEXANDRIA, VA 22314 | | | NELSON, ALECIA DIANE | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2675 | |

DATE MAILED: 10/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

MVR

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|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/138,339 | PRYOR, TIMOTHY R. | |
| | Examiner | Art Unit | |
| | Alecia D. Nelson | 2675 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 28 October 2003.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 65-81 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 65-81 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____.
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) Other:

DETAILED ACTION***Claim Rejections - 35 USC § 112***

1. **Claims 65, 80, and 81** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is insufficient disclosure within the specification describing "two TV cameras being pointed in substantially a same direction away from said display", as recited by **claim 65**, or "two TV cameras being pointed in substantially a same direction", as recited by **claims 80 and 81**.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 65-69, 71-74, 77, and 79-81** are rejected under 35 U.S.C. 103(a) as being unpatentable over OH (U.S. patent No. 5,616, 078 in view of French et al. (U.S. Patent No. 6,430,997).

With reference to **claims 65, 73, 74, 80, and 81**, Oh teaches a method for input, by a person (Q), of data to a computer having a display (4) (see column 1, lines 7-12) comprising at least two spaced TV cameras (31, 31') provided on the display (4) for acquiring at least a pair of images of one or more datums (M) associated with the person (see column 4, line 43-column 5, line 3). Also with reference to the at least two TV cameras being pointed in substantially a same parallel direction away from the display, Oh teaches that the video cameras are disposed at positions suitable to overlook the player obliquely from front and above (see column 4, lines 42-45). As can be seen in Figure 1, the cameras are pointed in substantially the same direction away from the display and towards the user, wherein in the direction is an oblique direction. With further reference to the at least a pair of images being a pair of stereo images, it would be inherent that based on the positioning of the cameras (31, 31') that the generated images would be stereo images. Oh further teaches determining from the images acquired by the TV cameras the three dimensional position of at least one of the datums (see column 5, lines 11-23) and controlling the display based on the position of the datum (see column 5, lines 51-65).

Even though Oh teaches that the cameras are spaced apart at opposite sides of the display, there is no disclosure teaching that the cameras can be provided on the display device.

French et al. teaches an interactive virtual reality system (10) comprising a three dimensionally defined space (12) in which the player moves, and a wireless position tracking system (13) which includes a pair of laterally spaced wireless

optical sensors (14, 16) coupled to a processor (18) (see column 8, lines 51-62).

Figure 1 shows that the processor, which is connected to the wireless optical sensor, is also attached to the display (28). Further it also taught that the wireless sensors could be one or more cameras or other image capturing devices may be used to continuously view the physical space (see column 10, lines 46-50).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention for the cameras used in the system of Oh to be mounted on the display, similar to that which is taught by French et al., in order to provide a motion controlled video system in which the motion of the game characters are displayed is controlled in accordance with the motion of the player, thereby providing greater realism which allows the player a more realistic sensation.

With reference to **claim 66**, Oh teaches that video cameras (31, 31') are disposed at positions such as upper positions of the opposite sides of the front wall and at upper positions of the corner portions defined between the front wall and the opposite side wall, or at upper positions of the opposite side walls in the vicinity of the corner portions (see column 4, lines 43-59).

With reference to **claims 67-69, 75, 77, and 79**, it is further taught that the sets of markers (M) are adapted to indicate body parts or joints of the player (Q) such as a head, hands, arms, legs, and elbows (see column 4, lines 52-55),

wherein each marker includes a light omitting or reflecting member (see column 4, lines 52-55). The sets of markers may directly be attached to the body of the player or the player may put on special clothes, which contain the markers (see column 4, lines 55-59).

With reference to **claim 71**, Oh teaches that an image processor (33) includes a unit (333) that converts the two dimensional coordinates of the sets of markers into three dimensional coordinates (see column 5, lines 11-23).

With reference to **claim 72**, Oh teaches a second embodiment (Figure 6) which is designed for two or more players (see column 8, lines 23-28).

4. **Claims 70, 76, and 78** are rejected under 35 U.S.C. 103(a) as being unpatentable over Oh in view of French et al. as applied to **claim 65** above, and further in view of Naoi et al. (U.S. Patent No. 5,459,793).

With reference to **claims 70 and 76**, even though Oh teaches that the markers each include a light emitting or reflecting member (see column 4, lines 50-55), there is no disclosure towards a light source, which is proximate to each TV camera which is used to illuminate the datums.

Naoi et al. teaches a plurality of light sources (14) in which the direction of the irradiation light from the light source (14) coincides with the direction of the TV camera (see column 3, lines 67-column 4, line 3).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow for the usage of a light source to illuminate the markers as taught by Naoi et al. in a system similar to that which is taught by Oh, in order to reflect light from the marker for detection by the camera to thereby calculate the orientation of the user to thereby control the three dimensional object being displayed.

With reference to **claim 78**, Oh and French et al. fail to teach that the markers are of a specific shape being that of a point or a line.

Naoi et al. teaches that the color marker (24) is formed by either a spherical body or a polygonal body, thereby having a full reflection surface so that it is possible to ensure sufficient reflected light from the marker (see column 4, line 64-column 5, line 1). Hence, it is clear that the markers can be of different shapes.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow for the light source illuminating the markers shaped to receive a sufficient amount of light in order to more accurately detect and calculate the orientation of the user to thereby control the three dimensional object being displayed.

Response to Arguments

5. With reference to the Applicant's arguments directed towards the 112 rejection applied to **claims 65, 80, and 81** have been fully considered but they

are not persuasive. The applicant argues the mechanics/equations of "photogrammetry", where stereo images are used to determine three-dimensional location. Wherein the stereo images are provided from two cameras pointed in a same direction. It is further stated that if the 112 rejection is directed to the lack of a detailed disclosure of the mechanics of "photogrammetry", and thus somehow that "mounting" is "critical, it is here submitted that such mechanics are well known in the art.

The 112 rejection is directed to the lack of description to the claim limitation of the TV cameras "being pointed in substantially a same direction away from said display" and not to the mechanics/equation of photogrammetry. Further the admittance by the applicant that the mechanics/equations of photogrammetry as well known in the art will be considered as applicant's admitted prior art. . Oh clearly teaches the usage of a detector operable to detect three-dimensional positions of the markers (see abstract). Wherein it has been admitted by the applicant in Amendment F that a "person skilled in the art would be expected to have a good knowledge of the usages of TV cameras as input to computers, and the multitude of ways that such cameras could be mounted and adjusted". Therefore Oh does teach the claim limitations as recited in the claims.

The applicant's arguments towards the 103 rejection are unclear, however it is believed that the arguments are directed towards the examiners interpretation of the Oh reference with respect to the positioning of the cameras. The examiners states based on Figure 1 that the cameras are pointed in substantially the same direction away from the display and towards the user.

The reference states that the video cameras are disposed at positions suitable to overlook the player (see column 4, lines 43-45). Therefore because the cameras are disposed at position suitable to overlook the player, and it can be seen in the Figure that the cameras are pointed in substantially the same direction away from the display. Thereby teaching the limitation of the claim.

French et al. (U.S. Patent No. 6,098,458) has been provided to show the subject matter referred to in French et al. (U.S. Patent No. 6,430,997) was disclosed prior to the filing of the instant application. Further, it is argued that the reference fails to teach the location or direction of these cameras. However, French et al. teaches that the cameras are mounted on the display (28) (see Figure 1). Oh teaches the direction of these cameras being pointed in the same (parallel) direction away from the display as stated by the applicant. Therefore there is motivation to combine the references and the rejection will be maintained.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory

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action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alecia D. Nelson whose telephone number is (703) 305-0143. The examiner can normally be reached on Monday-Friday 9:30-6:00. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-2600.

adn/ADN
August 20, 2004



AMR A. AWAD
PRIMARY EXAMINER